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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,721	04/02/2007	Christopher L. Bohler	GLOZ 200154US02	9930
74495 7590 04/27/2011 FAY SHARPE LLP/GE LIGHTING SOLUTIONS, LLC 1228 Euclid Avenue, 5th Floor The Halle Building Cleveland, OH 44115-1843				
EXAMINER				
ZETTL, MARY E				
ART UNIT		PAPER NUMBER		
2875				
MAIL DATE		DELIVERY MODE		
04/27/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/555,721

Applicant(s)

BOHLER ET AL.

Examiner

MARY ZETTL

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,11-18 and 20-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,11-18 and 20-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No.(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

In view of the appeal brief filed on 1/4/2011, PROSECUTION IS HEREBY REOPENED. The non-final rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Diane I Lee/
Supervisory Patent Examiner, Art Unit 2875

Claim Objections

Claim 12 is objected to because of the following informalities: "the phosphor" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, there is no structure corresponding to the "luminescent converting" function of the luminescent converting element.

Regarding claim 23, there is no structure corresponding to the "index matching" function of the claimed material. Therefore this claimed feature has not been addressed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 7, 13-15, 20, 21, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haitz (US 5,758,951 A) in view of Lee et al. (US 7,226,189 B2).

Regarding claim 1, Haitz discloses a light source comprising: a light engine for generating light of one of a plurality of wavelengths, the light engine including: a

platform (27), and at least one LED (21-26, Fig. 3) disposed on the platform (Fig. 3); an enclosure (not specifically labeled, but shown between 27 and 45 on the left and right sides) surrounding a light generating area of the light engine (Fig. 3); a base (28 and 30, Fig. 3); a luminescent converting element (45, it is a luminescent element that converts input light to output light) to receive a light generated by the light engine and convert at least a portion of the received light into visible light (visible input light to visible output light), said luminescent converting element being one of disposed on the enclosure (disposed on the enclosure, Fig. 3) and dispersed within the material forming the enclosure or both; and a conversion circuit for supplying electric power to the light engine (controller, 35, Fig. 2).

Haitz does not disclose expressly a heat sink.

Lee et al. teaches a base (20) including a heat sink (30) for conducting thermal energy away from the at least one LED (60), into which the heat sink and light engine is mounted (Fig. 3 and 4).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz by including a heat sink as taught by Lee et al. for the purpose of preventing overheating and subsequently a shortened lifespan for the device.

Regarding claim 3, Haitz teaches a light guide (40, Fig. 3) disposed within the enclosure (Fig. 3).

Regarding claim 5, Haitz teaches the light guide (40) provides an appearance of a filament (like a filament in that the jagged section appears to be like a filament).

Regarding claim 7, Haitz teaches the light guide comprises a reflector (bottom surface of 40 that will reflect light through refraction).

Regarding claim 13, Haitz teaches one of an index matching material and a lensing material encompassing the at least one LED (45, lensing material, col. 5, lines 55-63).

Regarding claim 14, Haitz teaches the base (28) is adapted for mating with the light engine (all components are mated together).

Regarding claim 15, Haitz does not disclose expressly a heat sink.

Lee teaches the heat sink comprises: a slug (30) inserted into the base (20) for conducting the thermal energy from the at least one LED (60) to at least one of the base and ambient air (par. 21).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz such that a heat sink as taught by Lee et al. was provided for the purpose of preventing overheating and subsequently a shortened lifespan for the device.

Regarding claim 20, Haitz and Lee et al. does not disclose expressly the enclosure comprises a substantially elliptical shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to the enclosure a substantially elliptical shape, since it has been held that a mere change in shape of an element is generally recognized as being within the level of ordinary skill in the art when the change in shape is not significant to the function of the combination. Further, one would have been motivated to select the shape of an ellipse for the purpose of casting light in the desired manner. See *In re Dailey*, 357 F. 2d 669, 149 USPQ 47 (CCPA 1966).

Regarding claim 21, Haitz does not disclose expressly the enclosure comprising a substantially spherical shape.

Lee et al. teaches an enclosure (93) comprising a substantially spherical shape (Fig. 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz such that the enclosure was substantially spherical for the purpose of being able to cast output light in the desired shape.

Regarding claim 28, Haitz does not disclose expressly the platform comprising a printed circuit board or a heat sink.

Lee et al. teaches the platform comprising a printed circuit board or a heat sink (metal substrate, 50, par. 15, functions as a heat sink).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz by including a heat sink as taught by Lee et al. for the purpose of preventing overheating and subsequently a shortened lifespan for the device.

Regarding claim 29, Haitz teaches the base is a screw or wedge base (28).

Regarding claim 30, Haitz teaches the light engine is positioned at a peripheral of the enclosure (Fig. 3).

Claims 11 and 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Haitz (US 5,758,951 A) in view of Lee et al. (US 7,226,189 B2) and further in view of Vanderschuit (US 2004/0264187 A1).

Regarding claim 11, Haitz and Lee et al. do not disclose expressly the luminescent converting element comprises a phosphor.

Vanderschit teaches a light source including a luminescent converting element being one of disposed on the enclosure and dispersed in the material that forms the enclosure (par. 45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz et al. and Lee et al. by

using a phosphor in the luminescent converting element as taught by Vanderschuit for the purpose of producing light with a high color rendering index and with desirable light output qualities (such as creating white light through the combination of selected LEDs and phosphors).

Regarding claim 12, Haitz et al. and Lee et al. do not claim a phosphor.

Vanderschit teaches a light source including a luminescent converting element being one of disposed on the enclosure and dispersed in the material that forms the enclosure (par. 45); the phosphor comprising one of: an organic phosphor, an organic complex of a rare earth metal, a nanophosphor, and a quantum dot phosphor (par. 45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz et al. and Lee et al. by using a phosphor in the luminescent converting element as taught by Vanderschuit for the purpose of producing light with a high color rendering index and with desirable light output qualities (such as creating white light through the combination of selected LEDs and phosphors).

Claims 16 and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Haitz (US 5,758,951 A) in view of Lee et al. (US 7,226,189 B2) and further in view of Gloisten et al. (US 7,198,387 B1).

Regarding claim 16, Haitz and Lee et al. do not disclose expressly the slug comprises: a plurality of fins disposed about an outer periphery.

Gloisten et al. teaches a plurality of fins (44) disposed about an outer periphery (Fig. 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art have modified the invention of Haitz et al. and Lee et al. by providing a plurality of fins disposed about an outer periphery as taught by Gloisten et al. for the purpose of increasing heat dissipation.

Regarding claim 17, Haitz et al. and Lee et al. do not disclose expressly the heat sink extending radially from the base to conduct the thermal energy to ambient air.

Gloiseten teaches the heat sink extending radially from the base to conduct thermal energy to the air (Fig. 3).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art have modified the invention of Haitz et al. and Lee et al. by having the heat sink extend radially from the base to conduct thermal energy to the air as taught by Gloisten et al. for the purpose of increasing heat dissipation.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haitz (US 5,758,951 A) in view of Lee et al. (US 7,226,189 B2) and further in view of and Tseng et al. (US 2004/0105262 A1).

Regarding claim 18, Haitz et al. and Lee et al. do not disclose expressly the conversion circuit comprising an AC to DC converter.

Tseng et al. teaches a light engine for generating light of one of a plurality of wavelengths, the light engine including: a platform, and at least one LED (20), an enclosure, and a light guide (253) within the enclosure, and a AC to DC converter (paragraph 17).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Haitz et al. and Lee et al. such that an AC to DC converter was provided as taught by Tseng such that the LEDs which are DC based could be powered by a traditional AC power supply.

Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) in view of Vanderschuit (US 2004/0264187 A1).

Regarding claim 23, Harbers discloses a modular adaptable (capable of being adapted) LED lighting system comprising: screw base module (7; Figure 1); at least two light modules (2 and 1,3) having different light emission characteristics, each light module including: a platform (portion upon which the LEDs rest) which is adapted for mating with the base module (Figure 1), and at least one LED (2) disposed on the platform for generating light in a range from UV to infrared wavelengths (Abstract); an enclosure (5), which surrounds the light produced by the light module such that at least a portion of the light is transmitted through the enclosure; and a power module for energizing the at least one LED (necessary to cause the illumination effects described in the Abstract).

Harbers does not disclose expressly a wavelength converting material being one of disposed on the enclosure and dispersed within the material forming the enclosure or both.

Vanderschuit teaches a light source including a luminescent converting element being one of disposed on the enclosure and dispersed in the material that forms the enclosure (par. 45).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers by using a phosphor in the luminescent converting element as taught by Vanderschuit for the purpose of producing light with a high color rendering index and with desirable light output qualities (such as creating white light through the combination of selected LEDs and phosphors).

Regarding claim 24, Harbers discloses the base module (7) is one of a screw base or a wedge base (Fig. 1).

Regarding claim 25, although "the light of a second wavelength" has not been established it is assumed that this refers to the light that is emitted from the illumination devices. Harbers (col. 5, line 32) teaches visible light being emitted from their respective devices.

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harbers (US 6,586,882 B1) in view of Lee et al. (US 7,226,189 B2) and further in view of Cao (US 6,746,885 B1).

Regarding claims 26 and 27, Harbers and Lee do not teach an active cooling device.

Cao teaches an active cooling device (407, Figure 6) being an electric fan (col. 7, lines 30-40).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified the invention of Harbers and Lee by including a fan as taught by Cao for the purpose of preventing device overheating, which could cause device failure or a shortened lifespan for the device.

Response to Arguments

The arguments presented in the Appeal Brief are moot in view of new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Zettl whose telephone number is 571-272-6007. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MZ
/Mary Zettl/
Examiner, Art Unit 2875

/Diane I Lee/
Supervisory Patent Examiner, Art Unit 2875